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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/724,369

11/26/2003

Michael E. Sproul

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02/02/2010

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EXAMINER

SEVILLA, CHRISTIAN ANTHONY

ART UNIT

PAPER NUMBER

3775

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/724,369	<b>Applicant(s)</b> SPOUL, MICHAEL E.	
	<b>Examiner</b> CHRISTIAN SEVILLA	<b>Art Unit</b> 3775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 18-40 is/are pending in the application.
- 4a) Of the above claim(s) 27-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Applicant's Remarks filed 10/14/2009 are noted. The Examiner agrees that the Weber reference (US 2005/0165439) used in the rejection of claims 18-25 cannot be considered prior art, given that the Weber reference has a priority date that is later than Applicant's filing date. Accordingly, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of Maseda (US 6514237), Layne et al. (US 2002/0026195), and Gelsomini et al. (US 6368901) references.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maseda (US 6514237) in view of Layne et al. (US 2002/0026195), hereinafter "Layne."

Regarding claims 18 and 19, Maseda discloses a transducer comprising an electroactive polymer sandwiched between a pair of electrodes {col. 5, lines 1-19}. Maseda discloses the electroactive polymer exists in a first state (Fig. 5) having a first size and shape when no power is applied by the power source to the electrodes, the first size and shape allowing passage of the transducer in the first state through an interior lumen of a cannula; and the electroactive polymer changes to a second state

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(Fig. 5A) when power from the electrical power source is applied to the electroactive polymer, the second state having a second size and shape different from the first size and shape in at least one dimension (col. 6, lines 38-63). The device is capable of being disposed in cancellous bone if one chose to do so.

Maseda fails to disclose a cannula having an interior lumen; wherein the cannula has an aperture formed therein connecting the interior lumen to the exterior of the cannula; and wherein the electroactive polymer when in the first state is contained within the cannula and when in the second state extends outwards through the aperture.

Attention however is directed to Layne, which teaches an expandable structure (50) inserted through a hollow member (210) into a vertebral body; and wherein a cavity is created in cancellous bone {paragraph [0084]}.

It would have been obvious to a person having ordinary skill in the art at the time of the invention to have modified Maseda in view of Layne to construct a cannula having an interior lumen; wherein the cannula has an aperture formed therein connecting the interior lumen to the exterior of the cannula; and wherein the electroactive polymer when in the first state is contained within the cannula and when in the second state extends outwards through the aperture. Doing so would have protected the device from being damaged during insertion and removal of the device in the body.

Regarding claim 20, Maseda discloses the transducer comprises more than one pair of electrodes, or dendritic-type electrodes {col. 5, line 7}, sandwiching the electroactive polymer.

Regarding claim 21, Maseda fails to disclose the cannula has an aperture formed therein connecting the interior lumen to the exterior of the cannula; and wherein the electroactive polymer when in the first state is contained within the cannula and when in the second state extends outwards through the aperture.

Attention however is directed to Layne, which teaches an expandable structure (50) inserted through a hollow member (210) into a vertebral body; and wherein a cavity is created in cancellous bone {paragraph [0084]}.

It would have been obvious to a person having ordinary skill in the art at the time of the invention to have modified Maseda in view of Layne to construct a cannula wherein the cannula has an aperture formed therein connecting the interior lumen to the exterior of the cannula; and wherein the electroactive polymer when in the first state is contained within the cannula and when in the second state extends outwards through the aperture. Doing so would have protected the device from being damaged during insertion and removal of the device in the body.

Regarding claims 22 and 23, Maseda discloses the transducer comprises a frame (114; Fig. 5) affixed to the electroactive polymer.

Regarding claim 24, Maseda discloses the transducer is connected to the electrical power source by a cable {302; Fig. 3; col. 5, lines 27-30}.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maseda in view of Layne, as above, and further in view of Gelsomini et al. (US 6368901), hereinafter Gelsomini.

Maseda fails to disclose the transducer is connected to the electrical power source by radio frequency energy.

Gelsomini teaches a device powered wirelessly and continuously by radio-frequency signals.

It would have been obvious to a person having ordinary skill in the art at the time of the invention to have modified Maseda in view of Gelsomini to have constructed the transducer connected to the electrical power source by radio frequency energy. Doing so would have eliminated any possible encumbrance due to wiring, thereby making the device easier to handle by the surgeon during surgery.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTIAN SEVILLA whose telephone number is (571)270-5621. The examiner can normally be reached on Monday through Thursday, 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, THOMAS C. BARRETT can be reached on (571)272-4746. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CHRISTIAN SEVILLA/  
Examiner, Art Unit 3775

/Thomas C. Barrett/  
Supervisory Patent Examiner, Art  
Unit 3775